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Editor—HENRY E. SIGERIST

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CONTENTS

Introduction: HENRY E. SIGERIST 1
Geomedicine: A Science in Gestation: FIELDING H. GARRISON 2
Problems of Historical-Geographical Pathology: HENRY E. SIGERIST 10
Aztec Methods in Child-Training: JOHN RUHRAH 19
The Promethean Fantasies of Scriabine: JOHN RATHBONE OLIVER 31
Views on Epilepsy in the Hippocratic Period: OWSEI TEMKIN 41
The Warrington Academy (1757–1786) and its influence upon medicine and science. JOHN F. FULTON, M.D. 50
A New and Hitherto Unpublished Portrait of Marcello Malpighi: MICHEL PIJOAN 81
The Blindness of Milton: WILLIAM H. WILMER, M.D., L.LD., D.Sc 85
A Collection of Nineteenth Century Autographs; Being a Contribution to the History of Anaesthesia: HENRY E. SIGERIST 107
L'Hôpital: ROBERT DE BALSAC. Translated by MICHEL PIJOAN 118
Persian Medicine and Medicine in Persia: A Geomedical Survey: FIELDING H. GARRISON 129
Dr. James Thacher of Plymouth, Massachusetts, an Erudite physician of Revolutionary and Post Revolutionary Fame: WALTER R. STEINER, M.D., L.H.D. .... ~~174~~ 157
An Exhibit Illustrating the History of Anatomy 193
Medicine and Surgery in Ancient Egypt: HERMANN RANKE 237
Ancient Egyptian Ophthalmology: ARLINGTON C. KRAUSE 258
The Doctrine of Epilepsy in the Hippocratic Writings: OWSEI TEMKIN 277
The Philosophy of Hygiene: HENRY E. SIGERIST 323
Revised Students' Check-List of Texts Illustrating the History of Medicine: FIELDING H. GARRISON 333
An Index to Mediaeval French Medical Receipts: ADA GOLDBERG and HYMEN SAYE. 435
ACTIVITIES OF THE INSTITUTE OF THE HISTORY OF MEDICINE 45, 49, 126, 154, 192, 466

The Medical History of George Washington, his physicians, friends and advisors 174

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In launching the first serial publication of the Institute of the History of Medicine of the Johns Hopkins University, I wish to thank the members of the editorial board of the Johns Hopkins Hospital Hospital Bulletin for their willingness to print this Bulletin as a supplement to their JOURNAL. Since the foundation of our Institute in 1929, the publication of a periodical has been considered. The times, however, seemed not opportune for such an undertaking. It would have been difficult to find a sufficient number of subscribers, and furthermore, some time was necessary to get the research work of the Institute started. A supplement to be published with the BULLETIN OF THE JOHNS HOPKINS HOSPITAL whenever need was felt seemed therefore the most appropriate solution.

This Bulletin will contain short papers written by members of the Institute staff, or by members of the Johns Hopkins Medical School at large, or papers which are in some way connected with this school. If the Institute work develops in a satisfactory way, and if better times come, it is planned that this Bulletin might become an independent journal.

The Johns Hopkins Institute of the History of Medicine being the first, and so far the only one of its kind in the country, we believe that physicians interested in the subject will be glad to know about the work of the Institute. In each number of the Bulletin, we will therefore give a short report of the Institute's activities.

HENRY E. SIGERIST.

GEOMEDICINE: A SCIENCE IN GESTATION

FIELDING H. GARRISON

The notion of a "new science" is always suspicious, fraught even with the feeling of the clown in the mediaeval farce: "I fear nothing except danger;" but there is no immediate danger, for this prospective young hopeful is yet *in utero* and may be a long time a-borning.

To understand the implications of the term "geomedicine," consider the simple fact that the history of medicine proper is a record of the progression of medicine in time over certain favored cultural areas in space. Geomedicine, by parity of reasoning, would be a panoramic survey of the distribution of disease and of the corresponding status of medicine in space, within any given time interval. Thus medical history is a linear or chronologic record, geomedicine a lateral survey, not unlike Dr. Johnson's proposal to "view the world from China to Peru." Medical geography, which accounts for the diseases of different countries, with reference to climate, water supply, insect life and other environmental features, is essentially a branch of political geography; but geomedicine is a branch of medicine, with a cartographic implication. It implies a triangulation or cartography of disease and of the condition of medicine in different regions all over the globe, and is thus synonymous with geographic or global medicine. Its genesis is out of the Soviet by Professor Heinz Zeiss (Institute of the History of Medicine in the University of Berlin), whose long residence in Russia under the Soviet impressed him, no doubt, with the advantage of triangulation of medical conditions over the vast Siberian plateau. In his initial articles, Professor Zeiss inclines to stress the cartography of disease (the geographic pathology of Hirsch) as the chief end of geomedicine; but with regard to the inclusion of the status of medicine in the selfsame areas, as part of his cartographic program, he says latterly, in a letter of August 16· "*Mit ihrer Fassung der medizinischen Geographie und geographischen Medizin (Geomedizin) bin ich einverstanden. Sie haben den Sinn meiner Worte richtig erfasst,*

der vielleicht nicht so ganz klar war wie er hätte sein sollen." For historical purposes, in brief, geomedicine is the science of medicine in space.

Until latterly, the forward progression of medicine and sanitation in time has been over a few favored civilizations only: Egypt, Babylon, and Greece in antiquity; in more recent periods, Italy, England, Holland, France, Austria, Germany, and the United States. The influence of these seven nations upon the rise and development of modern medicine has been decisive beyond question; while Spain, Russia, Belgium, Switzerland, the Scandinavian and Balkan countries have produced remarkable medical men, even great medical leaders, as witness Vesalius (Belgium), Paracelsus (Switzerland), Ramón y Cajal (Spain), Metchnikov and Pavlov (Russia), but upon European medicine the influence of these countries as nations has been next to nothing or *nil*. Occasionally influenced and abetted by some osmosis from outside developments in contemporary European medicine, these phases of national medicine have been more or less pocketed, insulated or isolated by peculiarities of their physical geography and the things which happened to them in their history. One thinks of English, French, or German medicine as going, influential, national developments in different periods; seldom, if ever, of Belgian, Danish, Finnish, Roumanian, or Servian medicine, as national spheres of influence: Solitary exceptions would be the medicine of Islam, which dominated Western Europe during the five centuries preceding the Renaissance, and is still as influential in Bosnia, Herzegovina, Styria and Turkey as in North Africa and Southern Asia; the medicine of Spain, which is still the medicine of Central and South America, Mexico, the Antilles, the Philippines, and parts of North Africa; while the medicine of present-day Russia is probably destined to be the medicine of the vast plateau between the Ural Mountains and the Pacific. These are not so much lineal as lateral, in other words, geomedical developments.

Suppose a pistol put at your head with reference to the diseases, medicine and sanitation of present-day Afghanistan, Bolivia, Borneo, Bulgaria, East or West Africa, North Australia, Siberia, or even Alaska. You would experience difficulties in supplying or improvising information sufficient to illuminate the importance of geomedicine as an ideal ground-plan for the concerned organization and advancement

of medicine over the habitable globe. In the light of what has been accomplished at Panama, in Manila, in Guayaquil, in the malarial districts of Italy or the hookworm areas of the South, the project is not entirely a pious dream.

In blocking out his postulates for this science-to-be, Professor Zeiss says, with the commendable modesty of the truly scientific physician: "*Die Geomedizin muss erst geboren werden.*" The parturition will be difficult, by reason of the small amount of actual knowledge at present available. Professor Sigerist plans to forward the matter by researches upon the cartography of disease over the earth, upon the effects of disease upon civilization, and *vice versa*, and with the possible aid of an international journal, he may thus officiate eventually as one of the assisting obstetricians at term.

Apart from what we know of the history of medicine in certain favored cultural areas, existing data of geomedicine are scattered through the records of old travelers, of which Dr. Welch, with singular forethought, has purchased a large collection for his Institute. Herodotus, the first of the great observant travelers, took aëroplane snapshots of the status of medicine in 5th century Egypt, Babylon, and Persia, which have been found to be remarkably accurate and informing in the light of subsequent investigation. Sir Richard Burton, perhaps the best equipped and most accomplished of all professional travelers, has buried in the vast *corpus* of his literary output innumerable observations on the diseases and medicine of the different countries he visited. These geomedical data may eventually be extricated and synthesized into an intelligible survey by one of our juniors. Dr. Matas has suggested most effective ways and means for a preliminary triangulation of the present status of Latin American medicine. What, one may inquire, is the object, the actual and prospective value of such studies? The answer is ready to hand in such a geomedical survey as that of Daniel Drake on the Diseases of the Interior Valley of North America (1850–1854). Drake, the greatest physician of the West in his day, travelled all over the Mississippi Valley at his own expense to blue-print the geographical pathology of the Middle West at a time when sanitation, as we understand it, was unknown. The early settlers in some of these Western states were wiped out by disease like the thin advance line of mobilized detachments standing up

against machine-gun fire in modern warfare. The disease-areas which Drake triangulated are now among the healthiest in the world; the anomalous communicable fevers he described have disappeared. His work anticipated all subsequent sanitary surveys of localities by blue-printing. Contemporaneous with the famous sanitary survey of Massachusetts (1849) drafted by Lemuel Shattuck (1850), Drake's book undoubtedly inspired the remarkable questionnaire drawn up by J. S. Billings (1880) for a sanitary survey of the entire United States, with the object of bringing each locality and region up to the standards of public health available at the time. Here was geomedicine *in excelsis*, upon a grand scale, and by the same token, foredoomed to incur the indifference anticipated by Billings himself. "In medical topography as a science," he says, "there has been little advance for a thousand years, and so long as present methods are pursued, no great additions to our knowledge in this direction can be expected. Vague generalities and opinions must be replaced by specific information and from square miles we must come down to square feet. The results which we now have can best be compared to those obtained by the young chemist who made an analysis of a rat—putting the entire animal into his crucible." Today, the ways and means available are indicated in the Latin by-word: *non eget arcu*. Geomedicine may bend the bow, if the arrows are at hand. The areas to be triangulated are immense: the desolate Asiatic plateau controlled by the Soviet, South America, Africa, Australia, Polynesia, and China, that unknown museum of pocketed endemic areas of disease of all kinds.

The ultimate relation of geomedicine to medical history in the future may be illustrated as follows: Assume the possibility of an international history of medicine, covering not merely the advanced civilizations we know of, but the whole habitable globe (*la médecine globale*). Apart from scattered bits of information afforded by the old travellers, it would be made up of a summation of successive geomedical surveys of disease and of the global distribution of scientific medicine at stated intervals, not unlike the reconstruction of the finer anatomy of the embryo in three dimensions from serial sections by the elder His or Charcot's use of the same method to trace the pathological locus of amyotrophic lateral sclerosis from cortex to muscle. The main difficulty with the details of the history of medicine in any

given country is that they are largely of local but not of international interest. Geomedicine will afford the big perspective and panoramic sweep, as from a high watch-tower, bringing out the salient features of the landscape and differentiating the woods from the trees. Thus, such recent items as China's contribution to tropical medicine (Faust), Goethe's relation to medicine, vivisection in antiquity, the effect of engineers' mistakes upon the sanitation of the Indian peninsula, the recent international congresses devoted to asthma and biliary calculus, are of broad historic interest; those on the medical literature of Guatemala, the medical history of British Columbia, the doctors of Quito (Ecuador), the new Heart Clinic at Syracuse, N. Y., the medical folklore of Anam, are of local historic interest; those on filaria pockets in China, Haverhill fever, Rift Valley Fever (Kenya), the new Five Year Medical Plan of the Soviet (1933–8), the death fogs in the Meuse, bootleg milk, the nosography of French Gaboon or Paul Wolff's study of drug-habits over the world are of contemporary geomedical interest. In the light of recent American experience, the fact that drives against inebriety and social evils only drive said evils underground and produce crime (Benjamin) acquires a very particular geomedical, as well as economic interest. The news columns of the *British Medical Journal*, the *Lancet* and the *Journal of the American Medical Association* abound in geomedical data, as yet incoördinated and without directives or objectives.

Implicit in the basic concept of geomedicine are a number of *Grenzgebieten* or border-line subjects, which can only be indicated in a rapid survey. Physicians who have practised medicine in different parts of the world know, for instance, that reactions to disease and appropriate lines of treatment are not the same among natives of different localities. The climate, insects and tropical diseases of Northern Australia, India, Persia, Latin America, the Philippines, Malaysia, Melanesia and Polynesia are utterly different. Each of these particular areas has, in fact, its own kind of tropical medicine. Braid, Elliotson and Esdaile, the British pioneers of hypnotism, found the self-contained Briton absolutely refractory to the hypnotic trances, which had been applied as a substitute for surgical anæsthesia in operations upon the neurotic, impressionable Hindu. So, too the automatic attitudes assumed by Charcot's hysterical patients in the Salpêtrière

were never duplicated by any other hysterical women after his time. Sir Clifford Allbutt once wrote to me that the elegant therapeutic prescriptions he had learned from Trousseau in the Hôtel Dieu would simply not work among his sturdy Yorkshire patients at Leeds. Sir Richard Burton opined that the decline of England began when Englishmen and English women left off taking the daily Lady Webster after-dinner pill. Professor Zeiss finds that the metabolism and disease reactions of East Prussians are entirely different from those of Germans in the Rhineland and the Ruhr and that human reactions to respiratory diseases and surgical operations are *sui generis* in cold and warm climates. The following *scherzo humoristique* of Billings illuminates the whole matter:

"These race problems are simply problems of heredity taken in mass, and there is no need to urge upon an assemblage of medical practitioners the importance of considering family pecularities in diagnosis, prognosis, and therapeutics. That the questions involved are difficult and complicated is true, but we are already possessed of more knowledge with regard to them than is commonly supposed.

"In a lecture on 'Life' delivered a few months ago, Professor Brooks, of the Johns Hopkins University, illustrated this as follows: 'If I am placed, with my eyes bandaged, before a stone lying free on the surface, and am told to kick it, and if I know at the same time the size, shape, and weight of the stone, and the character of the surface, I can form a pretty accurate idea as to what the result upon the stone will be; while, if the object to be kicked is a dog, and I am given precisely the same data, I cannot tell what will be the effect. But if I can see the dog, I can, in many cases, predict pretty accurately. If he is a bull-dog, he will do one thing; if he is a Gordon setter, he will do another.' And, in like manner, the old family doctor knows that when a particular disease appears in his neighbourhood, he may expect to see it produce in one family convulsions, in another collapse, and, in a third, little or no danger or inconvenience."

Important are Professor Sigerist's studies, actual and prospective, upon the relations of disease to civilization, in connection with the great thought of Descartes that medicine may be the essential prime-mover of civilization in the future. Very important, too, are Allbutt's studies of the familial distribution of certain diathetic disorders in space and time. Diatheses such as gout, rheumatism, or neurosyphilis, like influenza, are multiform, of lateral as well as linear distribution; so that an apparently independent disease in an individual may be correlated in space or time as a mere symptom of a diathesis

distributed among the ascendants, descendants or collateral sibs of his family, and the complete picture of the diathesis may thus be summarized from its familial distribution. Today, when the doctor's practice is mainly transient, made up of patients who come to his office or clinic, there are no such opportunities as Allbutt had as family doctor to all Yorkshire, or Charcot in his mammoth world-clinic at the Salpêtrière. In Germany, this difficulty is set off to some extent by *Familienforschung* or retrospective studies from family records. Another border-line subject is that of ethnic psychology, with reference to the impact of disease upon different racial stocks, their corresponsive reactions to disease, and the collateral effects of mongrelization and change of environment. Another is the increase of crime and of criminaloid traits of character in physicians since the World War. An important medico-historical study has recently been published in Germany on novels dealing with crimes perpetrated by doctors, apart from instances publicly posted in the German medical press. Can these things be an effect of the unemployment of the machine age, which pauperizes the doctor by driving away the best of his clientèle, while converting the rest of his practice into a public charity? To a geomedical survey of any country belong, in fact, the various data on the seamy side of our profession, which the historian would fain ignore, from "tittle tattle about the great" to the black-sheep and general riff-raff hanging about the *enclave* which is the "art and mystery" of bedside medicine. Finally, there is the aspiration of the League of Nations toward global sanitation and world-control of disease, for which geomedicine would be the necessary and sufficient ground-plan or frame-work. Here, the wonderful success of the Rockefeller Foundations in the eradication of hook-worm infection, their self-effacing activities at the Malaria Experiment Station in Italy or in the Peiping Union Medical College, let alone the experience of the Kenya Colony in East Africa, where a handful of English physicians have been able to activate the natives to coöperative team-work in preventive medicine—all these things are suggestive of much. There is even sound sense in the off-hand utterance of Billings: Give people better water-supply, sewage disposal, bath-rooms, kitchens or sanitary appliances and certain cultural advantages will follow as a matter of course. In other words, to activate the self-regarding feel-

ings of people with regard to the preservation of their health is apt to develop a certain measure of altruistic feeling, in accordance with Newton's Third Law of Motion.

In the Kenya Colony, this experiment is in process of demonstration.

The success of medicine as an advance agency of civilization is bound up with Goethe's concept of *milde Macht*, as expanded in the monumental utterance of Wunderlich:

> "Natural science is a self-respecting, silently advancing power of whose might the spheres most threatened by it have hardly a notion. Just its singularity and its grandeur is that it showers its gifts upon friend and foe and scoffer alike, that it conquers and maintains its dominion by its blessings, as it noiselessly subdues and dissolves unreason."

My old friend and mentor, Dr. Jacobi, drew my attention to this organ-point of Wunderlich's, as like unto Kant's dream of eternal peace (*Zum ewigen Frieden*), a line of thought hundreds of years in advance of the time in which we are now living. He saw "this fine old world of ours" as "but a child yet in the go-cart," even as Ramón y Cajal opined that it may take millions of years for the human cerebral cortex to become structurally specialized up to the pacificist ideal. Those bred in the Anglo-Saxon tradition have learned from the consequences of the World War that it is risky to predict the future from the past. There is about it all the pathos of the old Jacobite song:

> "All has been done that man can do,
> And that been done in vain."

It is, in fact, an open question whether humanity at large will ever climb up to adult thinking or continue to envisage its own best interests with the mental originality of the *aard-vark* of South Africa (*Orycteropus Capensis*), or, shall we say, the sloth, ant-eater or armadillo of the South American forests.

PROBLEMS OF HISTORICAL-GEOGRAPHICAL PATHOLOGY

HENRY E. SIGERIST

The historical and geographical approach to problems of pathology has a very long history. The development of a disease in time and space was studied very carefully by ancient medical writers. Up to the 19th century, the history of disease, like the history of medicine, was not an historical subject treated by historians, but a subject of actual living medicine. The ancient medical literature was still fully alive. Whoever investigated a medical problem was not satisfied with a study of the literature on the subject, of the last five or ten years, as is common today. He went through the whole literature, from Hippocrates to his own time, and felt bound to discuss all the theories he could find. A very good example is afforded in Haller's *Elementa Physiologiae* (1757–1766) which were meant as a modern text-book, and yet represent the most complete history of physiological problems at the same time. Whenever a medical man investigated and described a disease, he always gave an historical summary, which was not a mere introduction, but an integral part of the book. It is not by accident that even in the 19th century the two men who made the greatest contribution to our knowledge of diphtheria—Bretonneau and Lœffler—felt the necessity of tracing the history of the disease. Both gave us, in fact, valuable histories of diphtheria.

Studies in the geography of disease, on the other hand, go far back in history also. Their main scope was to advance etiological knowledge —to find out whether the climate or the surroundings at large were responsible for a disease. The famous treatise on *Airs, Waters, Places* in the Hippocratic collection, in chief, had such a prognostic purpose.[1] It aimed to teach the doctor who came to a place unknown to him, what the relations between surroundings and disease were, in such a place, in order that he might get a right estimate of his patients' condition. The theory that epidemics were the result of cosmic or

[1] L. Edelstein: *Peri Aëron und die Sammlung der Hippokratischen Schriften.* Berlin, 1931.

telluric influences, that a certain *genius loci* was essential, led to a very extensive investigation of geographical conditions, and for many centuries epidemiological literature had such an historical-geographical aspect. Up to the middle of the 19th century, the doctors, and particularly the pathologists, were highly interested in these studies. August Hirsch wrote a book which for a long time was the standard work on the subject.[2] Under the influence of Rudolf Virchow, however, anatomical investigations began to dominate pathology, and were followed by physiological research, so that there was little time for historical-geographical investigations, and only in the field of tropical medicine, a branch of pathology devoted chiefly to the diseases of definite countries, the geographical considerations could not be overlooked.

In the beginning of our century, medical history took a new start, and it is obvious that much of its new activities was devoted to the history of disease. A special series for the history of infectious diseases was started by Sudhoff, Sticker, and others, but it did not survive the war. George Sticker, in Würzburg, who probably knows the history of epidemic diseases better than any one else, wrote most valuable monographs on the history of cholera, pneumonia, plague, and syphilis. Yet this new development had little influence on medicine. The investigations were carried on by historians, and little was known except among them.

On the other hand, we find today a revival of interest in geographical pathology. An International Society for Geographical Pathology was recently founded by Professor Askanazy, in Geneva, and held its first congress in 1931. It proved to be a great success. It seems to me, however, that both movements will have to join in order to get the best possible results, and the purpose of this paper is to show some of the problems concerned in this subject, and to demonstrate why a close coöperation is necessary.

I. THE HISTORY OF DISEASE

To trace the history of a definite disease is a very arduous task. The ideal methods are those developed by Paleopathology, according to

[2] *Handbuch der Historisch-Geographischen Pathologie:* 2 vols., 2nd ed., Stuttgart, 1881–1886.

which we examine human remains directly, for pathological changes. The examination of bones, of fossil animals, of prehistoric and early historical man, and the microscopic examination of soft tissues, made possible in the case of Egyptian mummies, brought out fundamental results—the evidence that disease has occurred at all times, and always did, in the same basic forms which we observe today. It would be wrong, however, to conclude that the distribution and frequency of disease were always the same. It is certainly important to know that tuberculosis, arteriosclerosis, and similar diseases occurred in Egypt in a far remote period. And yet we want to know more. We want to know whether these diseases were frequent or not, what part they played in the life of a definite society. In most cases, we have not even the possibility of investigating human remains, and all we can do is to go through the entire literature, and to see whether we can find a description of symptoms typical of the disease we are interested in. In some cases works of art, paintings, and sculptures may throw some light on pathological deformities. The eye of the artist sometimes saw more than the doctor's eye. And from such pictures we can ascertain that rickets, achondroplasia, and probably poliomyelitis existed in Egypt, although we have no written record to that effect. Yet in most cases our only method will be the critical interpretation of texts, and this is a very difficult task.

It is very easy to recognize the different types of malaria in ancient descriptions, because the attacks of fever were absolutely characteristic. Without considering the disease as a morbid entity in itself, each writer describing malaria will tell of the intermittent character of the fever. In the same way we will recognize pneumonia without difficulty in the ancient literature, because there, too, the characteristic clinical features were relatively easy to describe. On the other hand, it is extremely difficult to identify diseases like typhoid, typhus, dysentery, diseases of the heart, and so on, because their symptoms were not striking enough to be described unequivocally at an early time. The Greeks had no ontological conception of disease. They described symptoms and groups of symptoms without definite border-lines. In most cases, they had no name with which to designate the disease—they merely called certain groups of symptoms by the name under which they were known to the common people or else they talked in a

very general way of swellings in the region of the ears, or ulcers of the throat, etc.

It was only from the Renaissance on that the conception of disease as a morbid entity developed. It was by the strength of Sydenham's work, by the founding of pathological anatomy and by other results of etiological research. Although syphilis is a very well-characterized disease, to this day it has not been possible to ascertain whether the disease occurred in Europe before the discovery of America. Until a disease is discovered, and this means until a disease is recognized and described as a definite morbid process, it is extremely difficult to identify it in ancient descriptions.

The history of some of the acute infectious diseases is pretty well known. A great amount of work was devoted to the study of them. It is relatively easy to follow the course of such diseases because they arrested the attention not only of the medical men, but of everybody. They were natural catastrophes that befell a place. They influenced the life not only of the individual, but of entire communities, and had in many cases great social and economic consequences. We therefore hear much of such occurrences, and great epidemics like that of the Black Death in the 14th century have marked their epoch with an indelible stamp.

Other diseases, however, like those of the nervous system, the heart, the stomach, and the kidneys, have hardly been investigated in their historical development thus far. It will never be possible to trace them back to ancient times, as can be done in the case of epidemic diseases. And yet the history of these diseases can be written at least for the last few centuries. Very valuable results could be obtained without going further back than 1800. If we succeeded in giving a more or less complete disease history of the 19th century, this alone would be an achievement of greatest significance.

1. Importance for the history of medicine

The history of disease is the starting-point of all medico-historical investigations. It is impossible to understand a physician's behavior without knowing about the diseases he was fighting. It is obvious that a doctor's task was not the same on some of the Aegean islands in the 5th century B. C. as it was in a small 14th century European

town. Medicine is a practical art. It is not enough to know what the physician thought. We do not study the Hippocratic writings merely as a literary document of 5th century Greece. The physician's profession had a practical purpose, and we want to know whether a doctor did a good job or not, whether he succeeded in curing his patients, or in preventing disease. Therefore we have to know the diseases in the different periods of history, and we have to ascertain whether these diseases were the same as today, having the same characteristics as we observe today.

To know the history of disease, however, is necessary also for a deeper understanding of medical theories. The importance given to the spleen in Greek medicine can be understood only when we realize that these theories were born in places where malaria was endemic and where megalospleny was frequent, so that the spleen became even more outstanding than the liver.

2. Importance for the history of civilization

There can be no doubt that there must be certain relations between the civilization of a definite country in a definite period of history, and the diseases observed at that time and place. The problem is to know of what kind these relations are. It seems to me that the whole question has to be approached from two different sides. Civilization influences the general pathological conditions, and on the other hand is determined in its course by disease. Civilization creates new pathological conditions. It removes man from the natural rhythm of life. Each change of cultural conditions has a definite repercussion on the diseases of the time. It is quite obvious that the diseases of a wandering tribe in Central Asia were other than the diseases in a medieval monastery. The fact that people live crowded in cities, far away from nature, has developed new diseases or at least has modified the frequency and intensity of other diseases. As far back as the 16th century, Paracelsus describes diseases peculiar to miners. In 1700 the Italian physician Ramazzini wrote a famous text-book on occupational diseases. In the 18th century, many books were written on diseases of scholars, writers, and people frequenting the court. Great events like the Industrial Revolution were responsible for an entire change of pathological conditions. That wars and revolutions were

always followed by the outbreak of epidemics is a well-known fact, and the World War was the first to deviate from that rule.

On the other hand, man, having attained to a higher civilization, begins to fight disease. An improvement of the social condition of the people will improve public health conditions as well. Many diseases have been wiped out entirely, or have been reduced in their frequency, so that they no longer threaten humanity. In the 18th century, thousands of people died of smallpox, a disease today unknown to most civilized countries. Rabies was a much dreaded disease until Pasteur gave us the means to prevent it. The most creditable achievement of modern medicine and hygiene is that many diseases today have become avoidable. Typhoid, which not long ago was considered a natural catastrophe, today is a scandal for which the responsible men are tried in many countries.

On the other hand, the course of civilization might be largely influenced by disease. First of all, civilization is possible only in countries where the health conditions are more or less good. Vast regions could not be settled on account of the prevailing diseases. Until modern hygiene gave the means of fighting infectious diseases efficiently, many colonizing enterprises were bound to fail.

The coming and going of epidemics was often followed by similar improvements in civilization. The Roman Campagna was a flourishing landscape four times in history—in pre-Roman times; when the Roman Empire was at its height; in the 8th and 9th centuries; and during the Renaissance. Today it is beginning to flourish once more. But in the intervals between these periods, the Campagna was deserted, and nobody could be induced to live there. Malaria raised its head, and made all life impossible. Following a certain rhythm, the disease decreased, and the immediate result was re-population of the country. In this case, the entire history of a landscape was determined by one single disease.[3] That the Black Death in the Middle Ages had great social and economic consequences is a well known fact and need not be repeated.

There is no doubt that diseases other than epidemics influenced cultural conditions also. A landscape where goitre is predominant, or

[3] A. Celli: *Die Malaria in ihrer Bedeutung für die Geschichte Roms und der römischen Campagna.* Leipzig, 1929.

where rheumatisms are frequent will suggest the disease in its meteorological and climatic aspects.

Another point is: how far the work of an individual is influenced by the diseases from which he suffered. It is certainly difficult to say what part tuberculosis played in the creative power of Spinoza, or Mozart, or Schiller. It is easier to recognize the influence of a mental disease in the paintings of Van Gogh. Disease always is a great experience in the life of a man, and such an experience might prove inspiring. And what is true for the individual is true for the community as well. The great epidemics were great experiences for entire communities, and many works of art were erected as monuments under the inspiration of such experience.

3. Importance for modern medicine

In Alexandria, a medical school developed, the followers of which called themselves Empiricists. Their chief doctrine was that the primary causes of disease are too obscure to be elucidated, and that the physician has to rely entirely on experience and observation. His chief source of knowledge was his own observation. The life of man, however, is short, and observations made in a life-time are but a few. Therefore, they said, you must take profit, not only of your own observations, but of those of others as well. The doctors of ancient times were no fools. They saw a great deal and they tell us about what they saw in their books. The physician therefore has to study the medical literature, and not only that of his own days, but the old books as well. This is true today, too. If you want to have a complete account of the features of a disease, it will not be enough to know a disease as it happens to occur in our time, and in the place where we live, but we must study its history as well. As a matter of fact, we always do so. When we speak of the mortality of a disease as increasing during the last five years, we make an historical statement. All hospital reports are historical documents, although they cover a very short period. If we broaden our outlook, if we do not satisfy ourselves by studying the diseases only over a period of a few years, but investigate the history of a disease over a long period of time, our results will be much more reliable.

Historical investigations are indispensable in studying epidemic

diseases. Pandemics of influenza occur once in a generation. And it is certainly important to know that the history of influenza can be traced far back in the Middle Ages, and that it came over the world regularly once every thirty or forty years, and with much the same characteristics.

It is further important to know that many diseases have changed in their character. Syphilis, which is a chronic disease today, was much more acute at the end of the 15th and the beginning of the 16th century. Scarlatina was much more malignant a few decades ago.

Since the Middle Ages we have found out a great deal about the mechanisms of epidemics, and the discovery of bacteria gave us a profound insight into the pathological genesis of epidemic diseases. As yet there are still unsolved problems. We know the origin of the Plague, and we know that a disease spreads along the highway of traffic. And yet we do not know why during the Middle Ages from the 6th to the 14th century there was no real epidemic of the Plague in Europe, although the Crusades gave sufficient opportunity for spreading the disease. We do not know why the sweating sickness, which befell Europe in the winter of 1528–1529, missed France and the southern European countries, and yet reached serious proportions in the Germanic countries. There are factors in the origin of epidemics that still have escaped our attention, of which a careful historical study covering long periods might prove enlightening.

The history of disease studied on a broad basis teaches us what the social consequences were, and gives us a picture of the interrelations between disease and society which might be of great value in further investigations.

II. THE GEOGRAPHY OF DISEASE

Whenever we trace the history of a disease, we do it in a definite country. We cannot study the history of the Plague at large. It will be the history of the Plague in the East, or in Europe, or a definite country. In other words, we cannot separate the history from the geography of disease. And an historical pathology will always be an historical-geographical pathology.

Modern pathologists, on the other hand, investigating the occurrence of a disease in a certain country, cannot avoid the question, whether

the disease was there at all times, or has made its appearance only recently; whether it was there in the same intensity and frequency; or whether there was change in the course of time. Studies in geographical pathology will always be incomplete as long as they do not take history into consideration. It seems to me a great mistake that the International Society for Geographical Pathology has ignored history, so far. This will handicap its work. International meetings of pathologists, who came together to discuss the occurrence of a disease in their respective countries, have taken place often before. If the new Society wishes to fulfill its purpose, it will have to develop the historical side of the subject as well.

III. CONCLUSION

The history and the geography of disease are inseparable themes. Historical-geographical studies in pathology can be of great importance for many investigations. Good work is going forward on these subjects all over the world, but it is scattered and not easily accessible. Therefore it seems to me opportune to encourage and centralize these studies by: (1) Founding an international journal devoted to historical-geographical pathology, giving historical as well as modern geographical studies, and a complete bibliography of the subject. (2) To begin a series of monographs on the history and geography of the different diseases, meant to replace the book of August Hirsch. (3) To publish at the same time an Atlas showing geographically the distribution of diseases in time and space.

AZTEC METHODS IN CHILD-TRAINING

JOHN RUHRÄH

Much may be learned from the graphic records left by vanished peoples, for now and then some medical fact is registered. This is true of the Aztecs. They were a fine race with a highly developed civilization, one different from ours but with an aristocracy, a military clique and a priestly class of great influence. Public health was a subject not unknown to them and their medicine held much of interest; crude, but so was the medicine of all countries at that time.

There are no written records, but they had an enormous literature set down in picturegraphs, which are not unlike our present day comic strips in the way they tell the story of their lives and conquests. Most of these pictorial records were destroyed through the religious zeal of the conquistadores but a few escaped and among them some that were taken back to Europe as curiosities. Among these is one known as the Codex Mendoza, now in the Bodleian Library in Mexico.

These codices might have lain unnoticed had it not been for Edward King, the son of Lord Kingston. He is given in the title page as Lord Kingsborough, but according to the National Dictionary of Biography his was a courtesy title of Viscount of Kingsborough. He devoted his life and his fortune to reproducing such remains of Mexican antiquities as he could find. The sumptuous volumes, in color, with a Spanish as well as English texts are a monument to his zeal and generosity. On these he spent over £32,000. Quarrelling with his papermaker over a small sum, he was thrown into a debtor's prison in Dublin where he died of typhus fever at the age of forty-three.

He tried to prove that the Aztecs were the lost tribes of Israel; and there are certain similarities in the Jewish and Aztec rites. We are not interested in that now, but in the record of the methods of child-training as outlined in the third part of the Codex Mendoza which is in the Peabody Library and to the directors of which the author is indebted for permission to copy the plates. The Codex Mendoza is said to take its name from the viceroy of Mexico, who had it prepared

by the Aztecs about the year 1540 to show the King of Spain something about the life and customs of his newly acquired people.

From these and some other sources of information we know that the Aztecs had certain rather rigid ideas on the subject of child-culture. They believed in a strict diet on the ground that too much food made for sloth and laziness. They believed in keeping the child occupied to keep it out of mischief. They believed in vocational training in household duties, in the trades, and of course in an arduous system of education for either knighthood or priesthood. Above all they believed in the Solomonic rule of spare the rod and spoil the child. The Aztecs were not mollycoddles as was shown in many ways, none better than in their handling of the drink question. They had pulque and allowed its use, but if one of the aristocrats got drunk, he was killed lest he repeat the offence, if a commoner, he was sold into slavery.

During the earlier years of life training was by admonition, but at seven years of age punishment enters into the training and occupies a prominent part. It is safe to say that they did not need to send for a psychologist or a counsellor in child-behavior.

The story is told in the accompanying plates. The following abridged explanation is largely adapted from the Kingsborough text. The mother is shown in the plate (1). As soon as the child was born, it was put into a basket (3) and when it was four days old (the four roses (2) above the child indicate four days) the midwife (4) carried the naked child in her arms into the court of the mother's house. The floor was strewn with rushes, which they called Tule, and upon them a small vessel of water was placed, in which the midwife bathed the infant. After this the child was named by three boys (6–7–8) who were seated near the rushes, eating a mixture of roasted maize and boiled beans, called Yxcue. The boys pronounced the name of the child, a name evidently given them by the midwife. If the child was a boy, when they carried it out to bathe it, the child carried in his hand [sic] a symbol (5) which represented the father's employment either in the army or of his trade. If a girl, she carried the symbol of a spinning-wheel and distaff with a small basket and a handful of brooms.

The umbilical cords of the boys with symbols, shield and arrows, were buried in a place where they were likely to have war with their enemies. The cords of the girl babies were buried beneath the *metate*,

the stone on which they ground meal. Twenty days afterwards the parents went with the infant to the temple which they called *Calmecas*, and in the presence of the priests presented it with its offerings of mantles and maxtles, together with some provisions. After this the child was brought up by its parents, and when it arrived at a proper age it was delivered to the high priest to be instructed, if the child was to become a priest, or if he was intended for the military they offered him to a master called *Teachcauh* or *Telpuchlato*, together with provisions and things for a celebration, and when the child was of fit age they offered him to the master.

In the plate the rushes and the vessel with water are shown (9). The ornamentation on the top of the pot is the symbol for water. The brooms, distaff, spinning wheel and basket are also shown (10). The father (11), the high priest (12), the infant in the basket for the presentation (13), the mother (14) and the master of the boys (15) are also figured.

Viscount Kingsborough in elaborate and learned footnotes points out at great length the similarity of the customs of the Mexicans and incidentally the Peruvians to those of the Jews. He cites many authorities. The Jewish rite of baptizing proselytes before three witnesses is analogous to the naming by three boys, the presentation in the temple with an offering and many other points which are not of pediatric interest.

In the other illustrations the education of the child may be followed. The circles represent years. Throughout these the father is shown dealing with the boys and the mother with the girls. The amount of food allowed is indicated by half a loaf, a whole loaf, a loaf and a half and two loaves. The sign before the mouth of the parents represent speech and it may be taken to mean that the parents are advising their children. The children, it will be noted, do not answer back, thereby showing a difference in the Aztec method and present-day training. At four the boy helps by carrying water; the girl is told about spinning. The distaff and wool are seen. In the next picture the mother instructs the girl and at five years of age the girl is practising spinning herself, and more successfully at six years of age. The boy at three is guided by the father, at four he helps by carrying water, at five by doing errands and picking things up in the market. At seven the boy

is instructed in fishing. At eight both parents are telling the children if they are not good they will be stuck with thorns, and the children are weeping. At nine years of age the boys are punished for disobedience by tying their hands and feet and sticking the pointed agave leaves into them. The girls are stuck only in the hands and are not tied.

At ten the punishment is whipping and at eleven the children are punished by being held over a fire of dried *axi*, probably chili peppers, and made to inhale the acrid smoke. At twelve the boys are punished by tying hand and foot and putting out on the damp ground to think it over, while the girls must clean the house all night. The symbol (14) represents the starry heaven or night—it suggests a cluster of electric light bulbs.

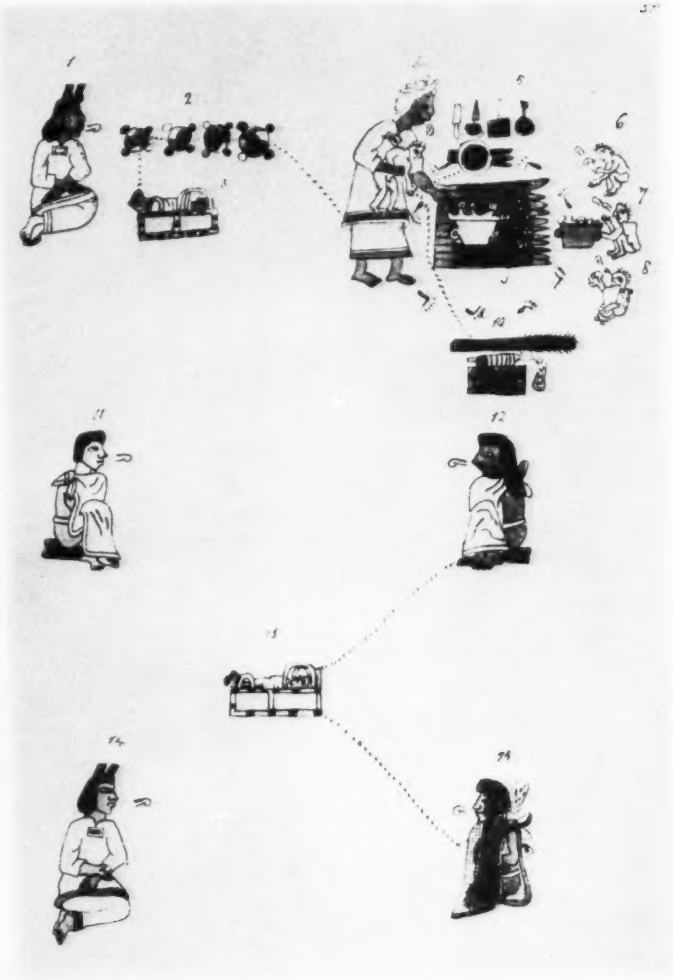
At thirteen the boys are instructed in boating and gathering wood and the girls in grinding meal and in cookery and, from the jar, we may judge in the preparation of drinks. At fourteen the boys are taught fishing and are doubtless adepts by this time. The girls are given instruction in weaving.

Thus we see the Aztecs, while not plagued with lessons from books, were given good instruction in all the occupations which fitted them for their life, were taught obedience, made to mind and taught moderation in all things. The girl is now ready for matrimony and some who do not marry evidently become attendants in the temples, much as the unwed of a generation ago and also today, if they are independent, are apt to work about the churches. The boys, as has been said, go on to their professional training which need not concern us at present.

Several things stand out plainly and these the Aztecs evidently regarded as their cardinal points in the education of children.

1. The avoidance of gormandizing and the careful regulation of the food.
2. The avoidance of idleness.
3. Strict punishment.
4. Vocational training.

All of these are sound in principle although the third today would be expressed better as strict discipline which, as far as American children are concerned, is conspicuous by its comparative absence.



THE PROMETHEAN FANTASIES OF SCRIABINE

JOHN RATHBONE OLIVER

Alexander Scriabine (Skryabin) was born in Moscow in 1872 and died there in 1915. Like so many other Russians of his class, he was destined for a military career and went to a military school. His musical ability, however, soon made military life and training distasteful to him and he entered the Moscow Conservatory, where he studied under Safonov and received a gold medal for piano in 1892. He then lived the usual life of a piano virtuoso, playing in all the important musical centers of Europe and winning great distinction. His peculiar temperament, however, soon rebelled against this type of activity. He disliked the limitations of such a life, the necessity of appearing before a public at definite hours and of being dependent upon their applause and approbation. While on concert tours he found neither time nor inclination for composition. He returned therefore to Moscow in 1898 and accepted a professorship in the conservatory where he taught until 1912. Then he resigned and devoted the last three years of his life entirely to composition.

His compositions fall into two distinct groups. His earlier works, that is, his compositions before 1900, have some connection with the development of instrumental music. They have structure and form, and some of them have attained permanent acceptance. Perhaps Chopin influenced Scriabine at this period more than any other composer.

After 1900 there is a marked change in his productivity. Structure and form are discarded. The fundamental rules of harmony are disdained and Scriabine becomes more and more of an extremist and an experimenter in tone. To this period belongs his symphony entitled "Prometheus or Fire." He was working out the correlations between music and color and had devised a color keyboard. Probably few people remember experiments of this type. To each note was assigned a distinct color and the keyboard of a piano was connected in some way with an electrical apparatus which threw upon a screen various

colors of the spectrum. The note A, for example, in the middle register of the piano, would show on the screen as a deep red. F sharp in a high register might project a light green. When a composition was played on the keyboard, various combinations and complex interweavings of color would appear. When this idea was transferred to the orchestra it became more complicated. The trumpet or the French horn might suggest a bright red, while the cello would represent a deep blue. The French called this whole theory "l'audition colorée." We shall have something more to say of it later on. But Scriabine in his later writings went a step further, or rather he was applying to music ideas that had already been worked out in France by the Symbolistic School. Scriabine planned a symphony that was to appeal not only to the ear and the eye, but also to the nose and the sense of smell. Tone or sound was to represent and to produce not only a sense of color, but also a sensation of odor. Such a symphony would appeal and touch the whole personality, through the doors of all the senses. Each person who heard it would not merely listen to a musical composition, he would experience and live in an entirely new world.

In order to understand these last ideals of Scriabine one must study from within the development of his personality. Such a study has been made possible of late through the publication of excerpts from Scriabine's personal diaries and note books.[1] Oskar von Riesman, who publishes this material, gives a very illuminating introduction that helps us to understand the outlines at least of the Promethean cosmic symphony. In brief, one may say that Scriabine believed that through music he could recreate and redeem the world. His symphony was to be a creative act in which every person who heard it would take such an intimate and active part that each would be redeemed and reborn into a new and glorious type of existence. To the casual reader such a concept seems not only fanciful, but quite mad. Even the psychiatrist is tempted to imagine that Scriabine must have been "a mental case." However, if one attempts to follow the development of Scriabine's personality and if one compares it on the one hand with Nietzsche and on the other with the school of French symbolists as

[1] (Alexander Skrajabin, Prometheische Phantasien, übergesezt und eingeleitet von Oskar von Riesemann, Mit Einem Bildnis Des Verfassers. Deutsche Verlags -Anstalt, Stuttgart und Berlin, 1924.)

represented by the early verse of Maeterlinck, the novels of Huysmans and the painting of Odillon Redon, one can trace fairly easily the outlines of Scriabine's development and classify him not as a "mental case" or psychotic, but as a great idealist and as a Promethean dreamer.

Scriabine spoke of his great symphony as a "Mysterium." The thirst for life that rises in the mind and that desires to work creatively upon material surroundings suggests to Scriabine's mind the opposites of male and female or of active and passive, that one generally speaks of as force and matter. The working of these two forces upon one another brings into existence the cosmic Eros. Mind or power, that is, the active principle which Scriabine called Prometheus works on material forms and strives for complete unity with the material in order to create for this material new forms and possibilities. Scriabine believed that the time was close at hand when all humanity would be filled with a desire to unify itself with mind or spirit and to take on new forms of existence. The coming of this hour was to be brought about by the "mysterium," Scriabine's new symphony. (*cf.* von Riesman, pp. 11 and 14.)

The place in which this "Mysterium" was to bring about a new heaven and a new earth was India. Here one traces plainly the influence of Madame Blavatsky and her teachings. In India, therefore, there was to be built a great circular theater, rising in concentric rows of people who were not merely a "public" listening to a symphony, but all adepts of an esoteric askesis and belief. The adepts who were more advanced in this askesis would sit in the lowest circle closest to the orchestra and its leader, while above them would rise concentric row upon concentric row of other adepts less advanced. The orchestra would be at the center and the director, Scriabine himself, would represent the central point at the exact center of all the concentric circles. When the symphony was played, appealing to all the human senses of all the circles of all the adepts, there would take place a new creation and a complete redemption from all the material bondage of modern life. There would be, in the words of Nietzsche an "Unwerthung aller Werthe." It is this ideal that Nietzsche sought to achieve in the realm of morals, of judgment and of intelligence. To Scriabine it was to be a universal change of all things.

In order to understand these concepts more adequately it may be worth while to study very briefly the development of Scriabine's personality and to attempt to evaluate some of the influences that were brought to bear upon him. We may roughly divide our study into the internal or subjective elements of this development and the objective or external influences. The excerpts from Scriabine's diary show us first of all a very sensitive and active young mind that looks out into the world of adolescence with great expectations of happiness. (*op. cit.*, p. 24.) This expectant attitude of mind is soon wounded and crushed by the experiences of every-day life. Scriabine wrote (page 24) that in order to become an optimist one must have felt despair and conquered it. He goes on to say, "In early youth filled with the false pictures of hope, I enjoyed the gleaming beauty of the world and awaited revelations from heaven. But I experienced no revelations. Well and what next? I sought everlasting truth among men, but they knew this truth even less than I. Well and what next? I sought everlasting beauty, I did not find it. I sought comfort in a new spring and in new flowers. I did not find it. At last I sought comfort in the pictures of memory. But I grew accustomed to them and so I lost them. Well and what next? Whoever you are who has thus deceived me, who has pushed me into this dark prison, who has kindled my enthusiasm only in order to betray me, you who gave only to take away, I forgive you and am not angry, for I love life. I love mankind. I love them because they suffer through you. I will proclaim to them my victory over you and over myself. I will tell them not to place their hopes in you. I will tell them to expect nothing from life except what they can create themselves. I thank you for all the fearful trials that you have laid upon me. You have made me understand my own boundless strength, my almightiness, my unconquerableness. You have given me victory. Strong and mighty is only he who has felt despair and has conquered it."

These rather inadequate translations from Scriabine's note-books show a type of mental reaction that is closely paralleled by the similar reactions of Nietzsche. One must remember, however, that the German, from which I have translated, was in itself translated from the Russian. My own rendering therefore probably loses as much of the original as did the version of Constantine the African when he trans-

lated into Latin from the Arabic the words of Galen that had originally been written in Greek. One gets, however, the main outlines of Scriabine's development. First comes the period of intense expectation. As a result of unhappy experiences, there develop disappointment, disillusionment and despair. As a result there comes a sense of inferiority.

Most people who experience deeply and who suffer disillusion, are content to accept all this and to go no further. Not so Nietszche. Not so Scriabine. Such minds cannot live with the sense of inferiority, that is the result of frustration. A compensatory reaction sets in which overcompensates for the sense of inferiority by an extreme emphasis on the value and importance of a thinker himself. We have no good word for it in English. In German, it is the "*Bejahung*" of the individual. Such minds therefore refuse to be disappointed, to feel inferior. They go to the opposite extreme. They emphasize their own value and their own power so strongly that they feel able to stand practically alone. Theirs is not the conception of an "Athanasius contra mundum," who is willing to stand alone against the world, not because he is anything in himself but because he represents in the world the only witness to a divine revelation. Athanasius and his likes are never ego-centric and self-important. The Nietzsches and the Scriabines do not stand against the world because they are the humble champions of some divine revelation. They challenge the world because the world has hurt them and humiliated them and because they have over-compensated for the resultant sense of inferiority. They feel that they themselves are more important and more powerful than the world through which they have suffered disappointment and humiliation. With this over-compensation always comes the desire to dominate and to humble the world that has disappointed and humbled them. They will recreate the world. Theirs is to be an "Umwerthung aller Werthe." Nietzsche will accomplish it with his pen. Scriabine will bring it to pass with this symphony played by his orchestra in that great series of concentric circles in distant India.

We may turn now to a discussion of the external influences. With out a knowledge of these one might quite naturally suppose that Scriabine was indeed more or less psychotic. However, if one tries to reconstruct the general atmosphere of French literary life from

1890 onwards, one realizes that if Scriabine were psychotic then there were many other distinguished people who must have been tarred with the same brush. It is true that Scriabine's music does not betray these new influences until 1900, but we can only judge of these by his published material. The ideas that lay beneath this new development doubtless go back many years before the actual creation of his new type of work. There were many people in 1900 who were influenced by the teachings of Madame Blavatsky and her school, but this influence taken by itself does not adequately account for the peculiarities of Scriabine's last productive period.

In France beginning about 1890 we find a new movement in literature and in art that came to be called the "symbolistic school." Language became associated with color. The vowel "A" for instance was a red sound. The vowel "I" a high-pitched shimmering green. Articles on "l'audition colorée" appeared in the *Mercure de France* and in other similar periodicals. Men wrote red sonnets or blue ballads. This movement soon was transferred to the theater. Some of us who were young at the time may remember the celebrated *Théatre Libre.* In this peculiar place, plays were presented that appealed not only to the ear, but also to the nose. The evil man of the play, for instance, would speak in red language, using vowels that were predominantly red. The speeches of the heroine on the other hand would all be pitched in the key of blue. Moreover, behind the scene there were concealed large atomizers. The red-speaking villian would be associated with a particular type of odor and whenever he appeared, this perfume would be projected into the auditorium. The mingling of these various perfumes was supposed to create an atmosphere that represented the mental atmosphere of the play. This was pushing things to extremes with a vengeance and the unhappy audience was often overwhelmed by a wave of complicated and indistinguishable odors. However, no one ever thought that the members of the *Théâtre Libre* were psychotic. The movement affected even the atmosphere of English letters. There is a rather rare book written by that distinguished scholar and historian, John Addington Symonds, which is entitled "In the Key of Blue." It contains essays all of which were supposed to create an atmosphere corresponding to the deep blueness of the sky in Venice. Of course we may laugh now at what

seems to us the ridicuous side of the whole movement. At the time, however, it was a serious effort towards something new. Even so objective and restrained a group as the English Department of Harvard University took cognisance of the movement and assigned a discussion of it to Juniors in a prescribed English course.

In order to show how self-evident Scriabine's musical ideas must have seemed to French and English writers of this period, it may help to call attention to two outstanding figures in the French literature of the time. There is a thin little book of verse published in 1890 by a man who later on became one of great names in modern French literature, but who at the time of the publication of his first verse was a shining light of the symbolistic school. Maurice Maeterlinck began as a symbolistic poet. His little volume *Serres Chaudes* is full of symbolistic verse. Here are two green verses from a poem entited *Oraison.* Translation is impossible.

Et tandis que mon coeur expire
Les bulles des songes lilas,
Mon âme, aux frêles mains de cire,
Arrose un clair de lune las;

Un clair de lune où transparaissent
Les lys jaunis des lendemains;
Un clair de lune où seules naissent
Les ombres tristes de ses mains.

It is hard to imagine a soul with tender hands of wax watering a weary moonlight. Nevertheless the verses have melody and they have color. Here are another four lines from a poem entitled *Ame de Serre*:

J'attends pour voir leurs feuilles mortes
Reverdir un peu dans mes yeux;
J'attends que la lune aux doigts bleus,
Entr'ouvre en silence les portes.

Here again it is hard to visualize a moon with blue fingers that opens in silence the door of a hot-house. Maeterlinck's next important work was for the stage. If you will read over again his first short plays, especially *Les Aveugles* and *L'Intruse* you will see how the general effect is attained by the repetition of certain sounds that have definite color

values. Another writer of the day was J. K. Huysmans. His first novel "À Rebours" which is often inadequately translated "Against the Grain," is filled with symbolistic material. His hero attempts to live in an atmosphere that is purely symbolistic and that is as much unlike ordinary life as possible. It is the flight of the imaginative soul away from nature and away from the normal. The most remarkable description in the book is the description of the hero's library and the books that he reads. In this library he has constructed a peculiar organ or musical instrument which is the "reductio ad absurdum" of the whole symbolistic movement. This organ like any other organ has a number of stops. On each stop instead of the name of a series of organ pipes there is the name of a liqueur. On one stop is Old Cognac, on another Benedictine, on another Kümmel, on another Scotch Whiskey. The taste of each liqueur is supposed to represent a musical sound. A smooth old cognac gives to the taste the same reaction that the sound of the cello gives to the ear. Benedictine represents the oboe. Vodka is the trumpet. In order to compose a sonata, the player pulls out each stop in turn and as he pulls each stop a few drops of that particular liqueur falls into a small glass. In this way, from his different instruments, he composes a sonata or a symphony in the mingled liqueurs and then, by drinking the concoction, he hears the symphony or the sonata by way of his organs of taste. If we were to carry out this idea into modern life one wonders what type of music would be created by drinking a Martini or a gin cocktail. Of one thing, however, I am sure. If nowadays anyone constructed a Huysmans' organ, using instead of Old Cognac, Benedictine, Kümmel, etc., our modern synthetic gin or bad Scotch Whiskey or adulterated Brandy, he would not get the classical sonata or symphony that Huysmans' hero achieved. He would get, however, something very familiar; the sound of a modern jazz band playing "The Night When Love Was Born" or "Say It Isn't So." Fortunately for Huysmans' hero, he did not live in America under Prohibition.

This may seem very fanciful to us, but at the time it was not considered particularly funny or impossible. Huysmans' hero in his rebellion against nature finally decides that it is inartistic and ultranatural to eat food. He ends by taking all his nutriment in a small syringe *per anum*. Huysmans, like Maeterlinck, passed out of this

period of his development into a much finer and abler type of work. Perhaps if Scriabine had lived, he might have done the same thing. But if no one thought of classifying Maeterlinck and Huysmans as "mental cases" surely no one need classify Scriabine, nowadays, in the same way.

In conclusion, one can not help comparing Scriabine and Nietzsche. It is a comparison that almost forces itself upon us. But Scriabine's mode of expression was music. Nietzsche's mode of expression was language. It is therefore unfair to compare Scriabine's prose with the prose of Nietzsche. Take for example the sentences that I have quoted from Scriabine about the disillusions of his youth and compare it with that famous chapter "Das Grablied" in "Zarathustra:"

„Dort ist die Gräberinsel, die schweigsame; dort sind auch die Gräber meiner Jugend. Dahin will ich einen immergrünen Kranz des Lebens tragen.„

Scriabine's prose is the immature prose of a man striving to use an unfamiliar medium. Nietzsche's prose is the prose of genius. Finally, compare Schiabine's exalted confused cry of over-compensation (*op. cit.*, p. 35) with Nietzsche's song of victory that ought to be a part and parcel of the memories of every man who has suffered and has overcome suffering.

Oh Mensch! Gieb Acht!
Was spricht die tiefe Mitternacht?
„Ich schlief, ich schlief—,
„Aus tiefem Traum bin ich erwacht:—
„Die Welt ist tief,
„Und tiefer als der Tag gedacht.
„Tief ist ihr Weh—,
„Lust—tiefer noch als Herzeleid:
„Weh spricht: Vergeh!
„Doch alle Lust will Ewigkeit—,
—will tiefe, tiefe Ewigkeit!„

Nietzsche and Scriabine may to the modern psychiatrist present suggestions of mental illness. To the historian, to the lover of literature, they present nothing of the kind. If they were "mental cases" then the more mental cases of the kind that we have, the better for us all. But America has little understanding for the Scriabines and

the Nietzsches. We are too young and we have never suffered enough. It is still true today that:

> Wer nie sein Brot mit Thränen ass,
> Wer nie die kummervollen Nächte
> Auf seinem Bette weinend sass,
> Der kennt Euch nicht, ihr himmlischen Mächte.

VIEWS ON EPILEPSY IN THE HIPPOCRATIC PERIOD[1]

OWSEI TEMKIN

The collection which we call "the writings of Hippocrates" is a collection of writings by many different physicians about 400 B.C. As far as it deals with diseases, we have to distinguish between the actual knowledge the physicians had, based on actual observations, and the theories they built up in order to explain the observations. The separation of these two factors demands a strict philological analysis and interpretation. For instance, there is a statement that epilepsy is hereditary. It has been suggested that this statement was based on experience similar to our own statistic proofs. I contend, however, that a philological analysis of the writing in question would show that the statement is based not so much on experience as on the author's dialectic argument that *all diseases* are hereditary and that epilepsy is no exception. But, tonight, I shall only try to give some preliminary results concerning epilepsy.

Popular names for epilepsy were: "The sacred disease," "Great disease," and "Disease of Heracles." But the physicians too used these names when speaking about the disease as a whole. It is true, we do find "Epilepsis" and kindred terms, but these terms mean the single attacks from which the patient suffers.

The sacred disease could date from birth—and then it was obstinate. Only seldom did it attack for the first time people over twenty years of age. It might cease if it appeared before puberty. But if it lasted or began after this period, it would most probably continue until death.

Headache, noises in the head, vertigo, slow speech, stiffening of the hands might announce an attack, also when the urine became thin and raw, especially when accompanied by pains and cramp in the

[1] This paper is to be considered as a preliminary communication only. I have therefore included no references either to sources or bibliography. These will be given in an analysis of the Hippocratic writing "The Sacred Disease" to be published in the near future, as part of a general history of epilepsy, on which I am engaged.

shoulder, neck, or back, or stiffness of the body, or when the epileptic dreamed very excitedly.

A person long subject to the illness would recognize the approaching attack and would retire, whereas young children would fall wherever they happened to be.

Seized by an attack, the patient would fall down. He would kick and twist his limbs. His hands would be cramped, his teeth clenched, his eyes turned. He would be unconscious, dumb. He would suffocate, froth at the mouth. Sometimes he would pass excrements. The seizure might affect one side only, or both. It might start from the head, or the side, or the hand, or the foot. Attacks mostly came on during the rainy season, or could be caused by changes of wind and temperature. In young children they might be evoked by fear or weeping, accompanied by an inability to breathe quickly enough. In women, by irregularities of the menstrual period.

Most of the authors are rather diffuse about the prognosis and subsequent complications. Young children might either die or later on suffer from distortion of different parts of the body, from paralysis of the hand or the foot, from a chronic cough, or many other phenomena. Adults, apart from the aged, would neither die nor suffer from complications. In old age, the patient would either die or become paralyzed. If it were a first attack, he would most probably die.

In children the disease might disappear at puberty or through a change of place or manner of life. And the physician ought to treat his patient as long as he is still young. And he must know that epileptics are most easily curable when the attacks start from hands or feet. But he should not treat old people at all. If they did not die from the attack, they would recover best if left alone.

Now what was the method of treatment? We know a considerable amount about quack methods of treatment, especially practised by magicians. They used incantations, they forbade medicine and baths, and prohibited certain kinds of meat, poultry, fish and vegetables. In reality, they forbade the consumption of those animals and plants which were sacred to the gods to whom they attributed the infliction of the disease. These methods were ridiculed by the Hippocratic physicians, but of their own treatment they say little. We find only a few remarks and we may guess from them that the

physicians used medicine and prescribed diets. That is practically all we know.

Now it is remarkable, that the actual observations of epilepsy are very similar in the different authors. And therefore we could pick up the facts given in the different writings and form from them a complete picture. On the other hand, the explanations are widely divergent. Therefore I shall limit myself tonight to the theory given in the writing called "The Sacred Disease."

The author of this book contradicts the popular opinion that epilepsy and mental diseases in general have a supernatural origin. But he must prove it by developing his own theory.

First he gives a description of the blood-vessels. From all parts of the body small vessels go to the brain. Besides them, two main vessels traverse the body. One of them, the broader one, rises in the liver. One part goes down to the right foot. The other part goes through the right lung, throwing out branches to the heart and to the right arm, and ascends to the right side of the brain. The second one is narrower. It rises in the spleen, and follows a similar course. Now these vessels are filled not only with blood but with air also. It is the air which gives us consciousness, feeling and power of movement. And by means of these vessels the air is spread over the whole body. If the air cannot pass freely, the person falls ill. Such is the case in epilepsy.

The ailment derives from the brain. In the embryo, the brain is normally purified from superfluous phlegm. If this does not happen the phlegm must flow down later, and then the disposition for epilepsy is given. The phlegm may enter the vessels and make its way along them. If this occurs, the patient has an attack. The phlegm cuts off the supply of air, it affects the breathing and the patient is struck dumb. The air cannot enter the brain—and the patient loses consciousness.

The air cannot pass freely, it is shut in by the phlegm—and so the hands become cramped and the legs are flung about.

The lungs, being without a supply of air, send up froth to the mouth.

The blood stops flowing, the small vessels beat hard, so hard that the eye is twisted by the beating of its small blood-vessels.

The attack lasts until the phlegm is overpowered by the heat of the

blood. Then the vessels become free, the air can enter again and consciousness returns. And so the author goes on to explain other details of observation, fitting them all into his theory.

Now from the point of view of our modern knowledge of epilepsy, the observations and theory given in the Hippocratic writings will have different values. Of course, we shall not find the observations complete. We know that genuine epilepsy may show itself in attacks quite different from those described by the old physicians. And we also know that attacks quite similar to those of genuine epilepsy derive from other diseases. It is true, one of the Hippocratic physicians mentions that some hysterical attacks look like epilepsy. But other forms of convulsions in children, as in Little's disease, in Spastic Hemiplegia, or at the beginning of many infectious diseases were often not distinguished from epilepsy. But, in any case, the descriptions show a highly developed knowledge and a keen power of observation.

On the other hand, we may find the *theory* primitive and almost fantastic. But in its way it explains all the facts. If the function of a theory consists in explaining all the facts and in explaining them in the simplest possible way, we must confess that this theory of epilepsy fulfils its function.

Thus we see the theory is a thing of the past and has only historical interest. But the empirical knowledge of the old Hippocratic physicians, based on the observation of concrete cases, has formed the foundation of modern clinical symptomatology. And although greatly enlarged and often corrected, it perhaps still contains statements worthy of examination and clinical investigation.

ACTIVITIES OF THE INSTITUTE OF THE HISTORY OF MEDICINE

I. *Staff.*

Henry E. Sigerist, Professor of the History of Medicine and Director of the Institute of the History of Medicine.
John Rathbone Oliver, Associate in the History of Medicine.
Owsei Temkin, Associate in the History of Medicine.
Fielding H. Garrison, Lecturer in the History of Medicine.

II. *Courses given during the academic year 1932–1933.*

1. History of Science. A lecture course covering, in one year, the entire field of the history of science, illustrated by slides and other material. For undergraduate students of the Johns Hopkins University at Homewood. To be given at Homewood. Thursdays and Fridays, 10.30 a.m. Dr. Sigerist.
2. Problems and Methods of Medical History. An introductory course for medical undergraduates. First quarter, Tuesdays, 4–5 p.m. Dr. Sigerist.
3. History of Anatomy and Physiology. A seminar course dealing with the evolution of anatomy and anatomical illustrations, and studying the history of the principal physiological problems. Second and third quarters, Fridays, 4–5 p. m. Dr. Sigerist and Dr. Temkin.
4. Civilization and Disease. Illustrated lectures on the relations between civilization and disease. Fourth quarter, Thursdays, 4–5 p.m. Dr. Sigerist.
5. Conferences with Medical Undergraduates on the Use of Medical Libraries and Medical Literature, Medical Bibliography, Research Methods, Medical Biography, Reviews and Editorial Writing, the Preparation of Copy for the Printer and the Correction of Proofs. First and Second quarters, Thursdays, 4–5 p.m. Dr. Garrison, in collaboration with Dr. Sigerist.
6. Lectures and Conferences.
   a. The Medical Literature of France.
   b. The Medical Literature of Germany.
   c. Preliminary Survey of Latin-American Medicine (Round Table).
   d. Medicus medicum odit. (Round Table.)
   e. On Fame, Ability, Mediocrity and Oblivion in the Medical Profession.
   f. On Quackery as a Reversion to Primitive Medicine (Round Table). Dr. Garrison.
7. An Introduction to the Profession of Medicine from the Standpoint of History and of Ethics. For undergraduates of the Johns Hopkins University at Homewood. One lecture a week during the first half-year. This course is open to all undergraduates, and may be taken in two successive years. Dr. Oliver.

8. Lectures on Medical History, covering the entire field of medical history in two years. These lectures are illustrated with slides, photostats and other material. Two lectures a week during the first, second and third quarters. Monday and Wednesday, 4–5 p. m. Dr. Oliver.
9. Early Scholastic Medicine. A seminar course chiefly on Galen's Techne iatrike. For advanced students having a knowledge of Greek. One hour a week during the third and fourth quarters. Tuesday, 3–4 p.m. Dr. Temkin.

III. *Meetings.*

In commemoration of the 400th anniversary of the initial appearance of Rabelais' masterpieces, Gargantua and his edition of Hippocrates (Aphorisms) and Galen (Ars Parva) (1532), a special meeting was held at the Institute on Thursday evening, October 27, 1932. After an introductory address by Dr. Henry E. Sigerist, Professor Albert J. Nock delivered a lecture on the "Doctrine of Pantagruelism," which was very much appreciated by the large audience attending the meeting. Dr. William H. Welch spoke on the importance of Rabelais, and Professor G. Chinard revived the atmosphere of the Rabelais country, Touraine, which is now his own country. Refreshments were served in the Great Hall of the Welch Medical Library.

At the joint meeting of the Baltimore City Medical Society with the Osler Historical Society, on Friday, November 4, 1932, in Osler Hall of the Medical and Chirurgical Faculty, the five papers printed in this issue of the Bulletin were read.*

IV. *New Acquisitions of the Institute.*

While Dr. Sigerist was in Europe he purchased for the Institute a very valuable collection containing 3800 portraits and 2200 autographs of physicians and naturalists.

The *Handapparat* of Professor Johannes Ilberg, the well-known philologist in Leipzig, who has done such excellent work on the history of Greek medicine, was purchased. It contains 800 pamphlets and reprints dealing chiefly with the history of Greek and Roman medicine.

At an auction in London, manuscripts of Leonhardt Thurneysser, the famous 16th century alchemist, physician and printer were bought. These include about fifty manuscript leaves with medical, alchemical, and astrological texts.

Important books bought for the library of the Institute

1. Codices Graeci et Latini. Photographice depicti. Duce Scatone De Vries. . . . Tomus X. Dioscurides. Codex Aniciae Iulianae picturis illustratus, nunc Vindobonensis Med. Gr. I. . . . Lugduni Batavorum, A. W. Sijthoff, 1906.

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*A sixth paper on the History of Vaccination in Maryland read by Dr. William H. Welch will be printed in a later issue.

2. The Herbal of Apuleius Barbarus. From the early 12th century manuscript formerly in the Abbey of Bury St. Edmunds (Ms. Bodley 130), described by Robert T. Gunther. Oxford, printed for presentation to the members of the Roxburghe Club, 1925.

V. *Gifts.*

We have to acknowledge a very valuable gift from Dr. Casey A. Wood—a collection of Singhalese olas, medical books written on palm-leaves with styli, knives, and a pill-box.

H. E. S.